

# Properties of perfect transitive binary codes of length 15 and extended perfect transitive binary codes of length 16

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**ABSTRACT.** Some properties of perfect transitive binary codes of length 15 and extended perfect transitive binary codes of length 16 are presented for reference purposes.

**Keywords:** rank, kernel, automorphism group, binary codes, perfect codes, transitive codes.

The attached files contain some tab-delimited properties of perfect binary codes of length 15 and extended perfect codes of length 16. Classification of such codes can be found in [1], but unfortunately the list of such codes' properties was not attached to the paper. We acknowledge that such properties had been computed by the authors in [1] and our results are presented for reference purposes only. The attached files are

*perfect15.txt* contains a list of properties of all perfect codes of length 15. The properties are: index of the code in classification [1], rank, dimension of the kernel.

*perfect16.txt* contains a list of properties of all extended perfect codes of length 16. The properties are: index of the code in classification [1], rank, dimension of the kernel.

*transitive15.txt* contains a list of properties of all perfect transitive codes of length 15. The properties are: index of the code in classification [1], rank, dimension of the code's kernel, order of the code's automorphism group, number of codewords of weight 3 in the set  $C + C$ , order of the code's symmetry group.

*transitive16.txt* contains a list of properties of all extended perfect transitive codes of length 16. The properties are: index of the code in classification [1], rank, dimension of the code's kernel, order of the code's automorphism group, number of codewords of weight 4 in the set  $C + C$ , order of the code's symmetry group.

All computations have been carried out by using *Magma* [2] system.

## References

- [1] P. R. J. Östergård, O. Pottonen, “The perfect binary one-error-correcting codes of length 15: Part I – Classification”, *ArXiv*, <http://arxiv.org/src/0806.2513v3/anc/perfect15>.
- [2] Bosma W., Cannon J., Playoust C. The Magma algebra system. I. The user language // J. Symbolic Comput. — 1997. — Vol. 24. — P. 235–265.